Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Sorting Category: 6.14 (T)

Gyrokinetic Magnetohydrodynamics and the Associated Equilibrium[1] W. W. LEE, S. R. HUDSON, C. H. MA, Princeton Plasma Physics Laboratory, Princeton University, Princeton, NJ — A proposed scheme for the calculations of gyrokinetic MHD and its associated equilibrium is discussed related a recent paper on the subject [1]. The scheme is based on the time-dependent gyrokinetic vorticity equation and parallel Ohm's law, as well as the associated gyrokinetic Ampere's law. This set of equations, in terms of the electrostatic potential, ϕ, and the vector potential, $\mathbf{A}$, supports both perpendicular and parallel pressure gradients and their associated currents. The MHD equilibrium can be reached when $\phi \to 0$ and $\mathbf{A}$ becomes constant in time, which, in turn gives $\nabla \cdot (\mathbf{J}_{\parallel} + \mathbf{J}_{\perp}) = 0$ and the associated magnetic islands. [1] W. W. Lee, "Magnetohydrodynamics for collisionless plasmas from the gyrokinetic perspective," Phys. Plasmas **23**, 070705 (2016).

[1]The present work is partially supported by US DoE grant DE-AC02-09CH11466.

Abstract _____ *Limit*

W. W. Lee
wwlee@pppl.gov
Princeton Plasma Physics Laboratory

☐ Prefer Oral Session
☒ Prefer Poster Session

Date submitted: 21 Aug 2017 Electronic form version 1.4